THCE, CH_3OH and HCHO for methanol-fueled vehicles for each test phase (cold and hot).

(21) The weighted (cold and hot) brake specific emissions (g/BHP-hr) for the total test.

(22) The weighted (cold and hot) carbon balance or mass-measured brake specific fuel consumption for the total test.

(23) The number of hours of operation accumulated on the engine after completing the test sequences described in Figure N84–10.

[54 FR 14610, Apr. 11, 1989]

§ 86.1344–94 Required information.

(a) The required test data shall be grouped into the following three general categories:

(1) *Engine set up and descriptive data.* These data must be provided to the EPA supervisor of engine testing for each engine sent to the Administrator for confirmatory testing prior to the initiation of engine set-up. These data are necessary to ensure that EPA test personnel have the correct data in order to set up and test the engine in a timely and proper manner. These data are not required for tests performed by the manufacturers.

(2) *Pre-test data.* These data are general test data that must be recorded for each test. The data are of a more descriptive nature such as identification of the test engine, test site number, etc. As such, these data can be recorded at any time within 24 hours of the test.

(3) *Test data.* These data are physical test data that must be recorded at the time of testing.

(b) When requested, data shall be supplied in the format specified by the Administrator.

(c) *Engine set-up data.* Because specific test facilities may change with time, the specific data parameters and number of items may vary. The Application Format for Certification for the applicable model year will specify the exact requirements. In general, the following types of data will be required:

(1) Engine manufacturer.

(2) Engine system combination.

(3) Engine code and CID.

(4) Engine identification number.

(5) Applicable engine model year.

(6) Engine fuel type.

(7) Recommended oil type.

(8) Exhaust pipe configuration, pipe sizes, etc.

(9) Curb or low idle speed.

(10) Dynamometer idle speed (automatic transmission engines only).

(11) Engine parameter specifications such as spark timing, operating temperature, advance curves, etc.

(12) Engine performance data, such as maximum BHP, previously measured rated rpm, fuel consumption, governed speed, etc.

(13) Recommended start-up procedure.

(14) Maximum safe engine operating speed.

(15) Number of hours of operation accumulated on engine.

(16) Manufacturer's recommended inlet depression limit and typical in-use inlet depression level.

(17) Exhaust system:

(i) *Diesel engines:*

(A) Header pipe inside diameter.

(B) Tailpipe inside diameter.

(C) Minimum distance in-use between the exhaust manifold flange and the exit of the chassis exhaust system.

(D) Manufacturer's recommended maximum exhaust backpressure limit for the engine.

(E) Typical backpressure, as determined by typical application of the engine.

(F) Minimum backpressure required to meet applicable noise regulations.

(ii) *Otto-cycle engines:* Typical in-use backpressure in vehicle exhaust system.

(d) *Pre-test data.* The following data shall be recorded and reported to the Administrator for each test conducted for compliance with the provisions of subpart A of this part:

(1) Engine-system combination.

(2) Engine identification.

(3) Instrument operator(s).

(4) Engine operator(s).

(5) Number of hours of operation accumulated on the engine prior to beginning the test sequence (Figure N84–10).

(6) Identification and specifications of test fuel used.

(7) Date of most recent analytical assembly calibration.

(8) All pertinent instrument information such as tuning, gain, serial numbers, detector number, calibration curve number, etc. As long as this information is traceable, it may be summarized by system or analyzer identification numbers.

(e) *Test data.* The physical parameters necessary to compute the test results and ensure accuracy of the results shall be recorded for each test conducted for compliance with the provisions of subpart A of this part. Additional test data may be recorded at the discretion of the manufacturer. Extreme details of the test measurements such as analyzer chart deflections will generally not be required on a routine basis to be reported to the Administrator for each test, unless a dispute about the accuracy of the data arises. The following types of data shall be required to be reported to the Administrator. The Application Format for Certification for the applicable model year will specify the exact requirements which may change slightly from year to year with the addition or deletion of certain items.

(1) Date and time of day.

(2) Test number.

(3) Engine intake air or test cell temperature.

(4) Barometric pressure. (A central laboratory barometer may be used: *Provided,* that individual test cell barometric pressures are shown to be within ±0.1 percent of the barometric pressure at the central barometer location.)

(5) Engine intake or test cell and CVS dilution air humidity.

(6) Maximum torque versus speed curve as determined in §86.1332, with minimum and maximum engine speeds, and a description of the mapping technique used.

(7) Measured maximum horsepower and maximum torque speeds.

(8) Measured maximum horsepower and torque.

(9) Measured high idle engine speed (governed diesel engines only).

(10) Measured fuel consumption at maximum power and torque (diesel engines only).

(11) Cold-soak time interval and cool down procedures.

(12) Temperature set point of the heated continuous analysis system components (if applicable).

(13) Test cycle validation statistics as specified in §86.1341 for each test phase (cold and hot).

(14) Total CVS flow rate with dilution factor for each test phase (cold and hot).

(15) Temperature of the dilute exhaust mixture and secondary dilution air (in the case of a double dilution system) at the inlet to the respective gas meter(s) or flow instrumentation used for particulate sampling.

(16) The maximum temperature of the dilute exhaust mixture immediately ahead of the particulate filter.

(17) Sample concentrations (background corrected) for HC, CO, CO_2 and NO_X for each test phase (cold and hot).

(18) For engines requiring methanol and/or formaldehyde measurement (as applicable):

(i) Volume of sample passed through the methanol sampling system and the volume of deionized water in each impinger.

(ii) The methanol concentration of the GC analyses of the test samples, μg/ml.

(iii) Volume of sample passed through the formaldehyde sampling system.

(iv) The formaldehyde concentration of the LC analysis of the test sample, μg/ml.

(v) Specification of the methanol test fuel, or fuel mixtures, used during testing.

(vi) A continuous measurement of the dew point of the raw and diluted exhaust. This requirement may be omitted if the temperatures of all heated lines are kept above 220 °F, or if the manufacturer performs an engineering analysis demonstrating that the temperature of the heated systems remains above the maximum dew point of the gas stream throughout the course of the test.

(19) For natural gas-fueled engines: Composition, including all carbon containing compounds; *e.g.,* CO_2, of the natural gas-fuel used during the test. C_1 and C_2 compounds shall be individually reported. C_3 and heavier compounds, and C_6 and heavier compounds may be reported as a group.

(20) For liquefied petroleum gas-fueled engines: Composition of the liquefied petroleum gas-fuel used during the test. Each hydrocarbon compound present, through C_4 compounds, shall be individually reported. C_5 and heavier hydrocarbons may be reported as a group.

(21) The stabilized pre-test weight and post-test weight of each particulate sample and back-up filter or pair of filters.

(22) Brake specific emissions (g/BHP–hr) for HC, CO, NO_X, and, if applicable NMHC, NMHCE, THCE, CH_3OH, and HCHO for each test phase (cold and hot).

(23) The weighted (cold and hot) brake specific emissions (g/BHP-hr) for the total test.

(24) The weighted (cold and hot) carbon balance or mass-measured brake specific fuel consumption for the total test.

(25) The number of hours of operation accumulated on the engine after completing the test sequences described in Figure N84–10.

[59 FR 48535, Sept. 21, 1994, as amended at 60 FR 34376, June 30, 1995; 62 FR 54730, Oct. 21, 1997]

Subpart O—Emission Regulations for New Gasoline-Fueled Otto-Cycle Light-Duty Vehicles and New Gasoline-Fueled Otto-Cycle Light-Duty Trucks; Certification Short Test Procedures

SOURCE: 58 FR 58426, Nov. 1, 1993, unless otherwise noted.

§ 86.1401 Scope; applicability.

(a) This subpart contains CST procedures for gasoline-fueled Otto-cycle light-duty vehicles, and for gasoline-fueled Otto-cycle light-duty trucks, including those certified to operate using both gasoline and another fuel (for example, ''flexible-fuel'' or ''dual-fuel'' light-duty vehicles and light-duty trucks). For the purposes of the Certification Short Test, flexible-fuel or dual-fuel vehicles will be treated as dedicated gasoline vehicles. This subpart applies to 1996 and later mode years.

(b) References in this subpart to engine families and emission control systems shall be deemed to refer to durability groups and test groups as applicable for manufacturers certifying new light-duty vehicles and light-duty trucks under the provisions of subpart S of this part.

[64 FR 23922, May 4, 1999]

§ 86.1402 Definitions.

The definitions in § 86.096–2 apply to this subpart.

§ 86.1403 Abbreviations.

The abbreviations in § 86.096–3 apply to this subpart.

§ 86.1404 [Reserved]

§ 86.1405 Introduction; structure of subpart.

(a) This subpart describes equipment and the procedures required to perform the CST on gasoline-fueled Otto-cycle light-duty vehicles and gasoline-fueled Otto-cycle light-duty trucks (including those certified to operate using both gasoline and another fuel). Subpart A of this part sets forth the testing requirements, reporting requirements and test intervals necessary to comply with EPA certification procedures, subpart G of this part sets forth the requirements for Selective Enforcement Auditing of light-duty vehicles, subpart H of this part sets forth the standards for in-use testing, subpart K of this part sets forth the requirements for Selective Enforcement Auditing of light-duty trucks, and part 85, subpart W of this chapter sets forth the testing requirements for inspection and maintenance testing (which also may be utilized as part of the CST as defined in this subpart).

(b) Three topics are addressed in this subpart. Sections 86.1406 through 86.1413 set forth specifications and equipment requirements; §§ 86.1416 through 86.1426 discuss calibration methods and frequency; and test procedures and data requirements are described in §§ 86.1427 through 86.1442.